vegetation over rocks on a hill slope; in both cases, the eggs were exposed to direct sunlight. Wild eggs were also unpigmented, and laid in a clump, and clutch size (n = 5) varied between 18 and 27 (Table 1). The unpigmented eggs (i.e., eggs lacking an animal pole) and the discovery of a majority of wild clutches in moist substrate, away from direct sunlight, suggests that the species utilizes concealed habitats for laying eggs. The discovery of such sites, that are nowhere near waterbodies suggests that *Philautus annandalii* exhibits reproductive mode 16 (of Salthe and Duellman, 1973), and the larval stages are likely to show direct development, as also reported for other species of the genus (see Dring, 1987; Alcala and Brown, 1982).

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Ahaetulla nasuta Feeding on Tadpoles

The diet of the common vine snake (*Ahaetulla nasuta*) consists mainly of small mammals, birds, lizards, frogs, and occasionally, other snakes (Daniel, 1983; De Silva, 1990; Whitaker, 1978). In captivity, it has been known to feed on skinks, frogs and mice, picking them up from the ground if necessary (Samraat Pawar, pers. comm.). It has also been reported to catch fish (Whitaker, 1978).

In the second week of July, 1997, a field trip was made to Castle Rock, on the Goa-Karnataka border. Although the area is covered with semi-evergreen forest, the immediate surroundings of Castle Rock village are mostly scrubby and open. The rains had started and many frogs were breeding. On the morning of 14 July, 1997, we were walking on a nature trail in the scub forest when we saw an *Ahaetulla nasuta*, over 60 cm in length, staring attentively at a small rock on the ground. It was resting on a *Carvia* stem beside a path, with the anterior portion of its body thrown into a sigmoid curve, and slowly moving towards the rock. When its head was 15-20 cm away from the rock, it struck at it and caught a tadpole that was in a wet depression on the rock and swallowed it. After five minutes, it caught another, in a similar fashion. Before the snake swallowed this one, we caught the snake and examined the tadpole. Both the tadpoles were about 25 mm in total body length. These tadpoles were not held in the mouth till they ceased struggling, as in the case of other larger prey (Daniel, 1983; Samraat Pawar, pers. comm.), but swallowed immediately.

The tadpoles have not been identified but were probably those of *Indirana leithii*, a common frog in the area. The red laterite of Castle Rock is rough, with numerous depressions separated by sharp edges to the rocks. The tadpoles were abundant in such depressions. Several developmental stages were noticeable, although a majority had developed hind limbs. They hopped when disturbed and took refuge in the cracks and depressions in the rock. Both tadpoles eaten by the vine snake showed hind limbs.

This appears to be the first record of *Ahaetulla nasuta* predation on larval amphibians. Although this food type is only available seasonally, considering the abundance of these tadpoles at the locality, may constitute a major part of the diet of the snake during the monsoons. Also, the precision of the strikes of the snake is noteworthy, as each strike was directly aimed at the rock surface, and its binocular vision may play a vital role for such predatory behaviour.

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Sexual Dimorphism in *Kachuga tecta* and *K. smithii* (Testudines: Bataguridae) in Jammu, India

Among turtles males and females often differ in colouration, maturity size, shell proportions and other features (Agarwal et al., 1986; Auffenberg and Khan, 1991; Cagle, 1944; Das, 1985; Gupta, 1979; McCoy, 1968; Minton, 1966; Moll, 1987; Viosca, 1933; Graham, 1970; Verma, 1992). The reasons for these differences are however, poorly understood. Presumably, in some species, it may reflect factors important in social interaction and reproduction, and species showing little or no size dimorphism, may have evolutionary/environmental constraints on the development of marked size differences (Bury, 1979).

Darwin (1871) envisioned sexual size differences as a result of sexual selection, as selective force, unrelated to natural selection (Arnold, 1983) in which characters that enhance access of one sex to the other, usually males to females, are favoured. On the contrary, other workers (including Berry and Shine, 1980; Fitch, 1981; Shine, 1979 and Stamps, 1983) believe that sexual size dimorphism (SSD) is a result of ecological forces or natural selection due to differential interactions of each sex with its environment. Gibbons and Lovich (1990) were of the view that even local populations of turtles exhibit different degrees of SSD varying through time.

Data on the sexual dimorphism of freshwater turtles from India are fragmentary, based on some species from southern and central India. *Kachuga tecta* (Gray) and *K. smithii* (Gray) of the family Bataguridae, are the most abundant freshwater batagurid turtles in Jammu (Verma, 1992) in northern India. Both of these species are little known, and a complete account on sexual dimorphism in these turtles is lacking. This study was undertaken to generate information on sexual dimorphism in these turtles from a lotic habitat in Jammu.

Turtles were collected between 1988 to 1992, throughout the year, except during hibernation (November to February), by methods described elsewhere (Duda et al., 1993) from the Gho-Manhasan stream (74° 40'E; 32° 38'N), at an elevation of 302.6 m above sea level and situated circa 18 km north-west of Jammu city. Males were sexed by external characters (e.g., their relatively longer tail and bright colouration). All linear measurements of animals were recorded to the nearest mm using a flexible tape (for the shell) or with the help of dividers (the tail, from anus to tip). Most turtles were released after measurement, and only a few were taken to the laboratory for photography and identification. Sexual size dimorphism (SSD) in turtles was calculated using Size Dimorphism Index (SDI) after Lovich and Gibbons (1992):